

RAW SEQUENCE LISTING
PATENT APPLICATION US/08/959,013DATE: 07/15/98
TIME: 13:54:26

INPUT SET: S27454.raw

This Raw Listing contains the General
Information Section and up to the first 5 pages.

SEQUENCE LISTING

ENTERED

(1) General Information:

(i) APPLICANT: O'Malley, Bert W.
Tsai, Ming-Jer
Ledebur, Harry C. Jr.
Kittle, Joseph D. Jr.

(ii) TITLE OF INVENTION: MODIFIED STEROID
HORMONES FOR GENE
THERAPY AND METHODS
FOR THEIR USE

(iii) NUMBER OF SEQUENCES: 14

(iv) CORRESPONDENCE ADDRESS:

(A) ADDRESSEE: Lyon & Lyon
(B) STREET: 633 West Fifth Street
Suite 4700
(C) CITY: Los Angeles
(D) STATE: California
(E) COUNTRY: U.S.A.
(F) ZIP: 90071-2066

(v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: 3.5" Diskette, 1.44 Mb
storage
(B) COMPUTER: IBM Compatible
(C) OPERATING SYSTEM: IBM P.C. DOS 5.0
(D) SOFTWARE: Word Perfect 5.1

(vi) CURRENT APPLICATION DATA:

(A) APPLICATION NUMBER: 08/959,013
(B) FILING DATE: October 28, 1997
(C) CLASSIFICATION:

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48 (vii) PRIOR APPLICATION DATA:
49
50 (A) APPLICATION NUMBER:
51 (B) FILING DATE:
52
53
54
55 (viii) ATTORNEY/AGENT INFORMATION:
56
57 (A) NAME: Warburg, Richard J.
58 (B) REGISTRATION NUMBER: 32,327
59 (C) REFERENCE/DOCKET NUMBER: 226/286
60
61
62 (ix) TELECOMMUNICATION INFORMATION:
63
64 (A) TELEPHONE: (213) 489-1600
65 (B) TELEFAX: (213) 955-0440
66 (C) TELEX: 67-3510
67
68
69
70
71 (2) INFORMATION FOR SEQ ID NO: 1:
72
73 (i) SEQUENCE CHARACTERISTICS:
74
75 (A) LENGTH: 6177 base pairs
76 (B) TYPE: nucleic acid
77 (C) STRANDEDNESS: double
78 (D) TOPOLOGY: linear
79
80 (ii) MOLECULE TYPE: nucleic acid
81
82 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:
83
84 CTAGAGTCGA CCTGCAGCCC AAGCTCTCGA GGGATCCTGA GAACTTCAGG GTGAGTTTGG 60
85 GGACCCCTTGA TTGTTCTTTC TTTTTCGCTA TTGTAAAATT CATGTTATAT GGAGGGGGCA 120
86 AAGTTTTCAG GGTGTTGTTT AGAATGGGAA GATGTCCCTT GTATCACCAT GGACCCTCAT 180
87 GATAATTTTG TTTCTTTCAC TTTCTACTCT GTTGACAACC ATTGTCTCCT CTTATTTTCT 240
88 TTTTCATTTTC TGTAACCTTT TCGTTAAACT TTAGCTTGCA TTTGTAACGA ATTTTAAAT 300
89 TCACTTTTGT TTATTTGTCA GATTGTAAGT ACTTCTCTA ATCACTTTTT TTTCAAGGCA 360
90 ATCAGGGTAT ATTATATTGT ACTTCAGCAC AGTTTTAGAG AACAATTGTT ATAATTAAAT 420
91 GATAAGGTAG AATATTTCTG CATATAAATT CTGGCTGGCG TGGAAATATT CTTATTGGTA 480
92 GAAACAACATA CATCCTGGTC ATCATCCTGC CTTTCTCTTT ATGGTTACAA TGATATACAC 540
93 TGTTTGAGAT GAGGATAAAA TACTCTGAGT CCAAACCGGG CCCCTCTGCT AACCATGTTC 600
94 ATGCCTTCTT CTTTTTCCTA CAGCTCCTGG GCAACGTGCT GGTTGTTGTG CTGTCTCATC 660
95 ATTTTGGCAA AGAATTCACCT CCTCAGGTGC AGGCTGCCTA TCAGAAGGTG GTGGCTGGTG 720
96 TGGCCAATGC CCTGGCTCAC AAATACCACT GAGATCTTTT TCCCTCTGCC AAAAATTATG 780
97 GGGACATCAT GAAGCCCTT GAGCATCTGA CTTCTGGCTA ATAAAGGAAA TTTATTTTCA 840
98 TTGCAATAGT GTGTTGGAAT TTTTGTGTC TCTCACTCGG AAGGACATAT GGGAGGGCAA 900
99 ATCATTTAAA ACATCAGAAT GAGTATTTGG TTTAGAGTTT GGCAACATAT GCCATATGCT 960

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|-----|------------|------------|------------|-------------|-------------|-------------|------|
| 100 | GGCTGCCATG | AACAAAGGTG | GCTATAAAGA | GGTCATCAGT | ATATGAAACA | GCCCCTGCT | 1020 |
| 101 | GTCCATTCTT | TATTCCATAG | AAAAGCCTTG | ACTTGAGGTT | AGATTTTTTT | TATATTTTGT | 1080 |
| 102 | TTTGTGTTAT | TTTTTCTTTT | AACATCCCTA | AAATTTTCCT | TACATGTTTT | ACTAGCCAGA | 1140 |
| 103 | TTTTTCTCTC | TCTCCTGACT | ACTCCAGTC | ATAGCTGTCC | CTCTTCTCTT | ATGAACTCGA | 1200 |
| 104 | GGAGCTTTTT | GCAAAAGCCT | AGGCCTCCAA | AAAAGCCTCC | TCACTACTTC | TGGAATAGCT | 1260 |
| 105 | CAGAGGCCGA | GGCGGCCTCG | GCCTCTGCAT | AAATAAAAAA | AATTAGTCAG | CCATGGGGCG | 1320 |
| 106 | GAGAATGGGC | GGAAGTGGGC | GGAGTTAGGG | GCGGGATGGG | CGGAGTTAGG | GGCGGGACTA | 1380 |
| 107 | TGGTTGCTGA | CTAATTGAGA | CTGCATTAAT | GAATCGGCCA | ACGCGCGGGG | AGAGGCGGTT | 1440 |
| 108 | TGCGTATTGG | GCGCTCTTCC | GCTTCCTCGC | TCACTGACTC | GCTGCGCTCG | GTCGTTCCGC | 1500 |
| 109 | TGCGGCGAGC | GGTATCAGCT | CACTCAAAGG | CGGTAATACG | GTTATCCACA | GAATCAGGGG | 1560 |
| 110 | ATAACGCAGG | AAAGAACATG | TGAGCAAAAG | GCCAGCAAAA | GGCCAGGAAC | CGTAAAAAGG | 1620 |
| 111 | CCGCGTTGCT | GGCGTTTTTC | CATAGGCTCC | GCCCCCTGA | CGAGCATCAC | AAAAATCGAC | 1680 |
| 112 | GCTCAAGTCA | GAGGTGGCGA | AACCCGACAG | GACTATAAAG | ATACCAGGCG | TTTCCCCCTG | 1740 |
| 113 | GAAGCTCCCT | CGTGCGCTCT | CCTGTTCCGA | CCCTGCCGCT | TACCGGATAC | CTGTCCGCCT | 1800 |
| 114 | TTCTCCCTTC | GGGAAGCGTG | GCGCTTCTTC | AATGCTCACG | CTGTAGGTAT | CTCAGTTCGG | 1860 |
| 115 | TGTAGGTCGT | TGCTCCAAG | CTGGGCTGTG | TGCACGAACC | CCCCGTTTCA | CCCGACCGCT | 1920 |
| 116 | GCGCCTTATC | CGGTAACAT | CGTCTTGAGT | CCAACCCGGT | AAGACACGAC | TTATCGCCAC | 1980 |
| 117 | TGGCAGCAGC | CACTGGTAAC | AGGATTAGCA | GAGCGAGGTA | TGTAGGCGGT | GCTACAGAGT | 2040 |
| 118 | TCTTGAAGTG | GTGGCCTAAC | TACGGCTACA | CTAGAAGGAC | AGTATTTGGT | ATCTGCGCTC | 2100 |
| 119 | TGCTGAAGCC | AGTTACCTTC | GGAAAAAGAG | TTGGTAGCTC | TTGATCCGGC | AAACAAACCA | 2160 |
| 120 | CCGCTGGTAG | CGGTGGTTTT | TTTGTTTGCA | AGCAGCAGAT | TACGCGCAGA | AAAAAAGGAT | 2220 |
| 121 | CTCAAGAAGA | TCCTTTGATC | TTTTCTACGG | GCTCTGACGC | TCAGTGGAAC | AAAAACTCAC | 2280 |
| 122 | GTTAAGGGAT | TTTGGTCATG | AGATTATCAA | AAAGGATCTT | CACCTAGATC | CTTTTAAATT | 2340 |
| 123 | AAAAATGAAG | TTTTAAATCA | ATCTAAAGTA | TATATGAGTA | AACTTGGTCT | GACAGTTACC | 2400 |
| 124 | AATGCTTAAT | CAGTGAGGCA | CCTATCTCAG | CGATCTGTCT | ATTTCTGTTCA | TCCATAGTTG | 2460 |
| 125 | CCTGACTCCC | CGTCGTGTAG | ATAACTACGA | TACGGGAGGG | CTTACCATCT | GGCCCCAGTG | 2520 |
| 126 | CTGCAATGAT | ACCGCGAGAC | CCACGCTCAC | CGGCTCCAGA | TTTATCAGCA | ATAAACCAGC | 2580 |
| 127 | CAGCCGGAAG | GGCCGAGCGC | AGAAGTGGTC | CTGCAACTTT | ATCCGCTCTC | ATCCAGTCTA | 2640 |
| 128 | TTAATTGTTG | CCGGGAAGCT | AGAGTAAGTA | GTTCCGCAAGT | TAATAGTTTG | CGCAACGTTG | 2700 |
| 129 | TTGCCATTGG | TACAGGCATC | GTGGTGTCAC | GCTCGTCGTT | TGGTATGGCT | TCATTAGCT | 2760 |
| 130 | CCGCTTCCCA | AGATCAAGG | CGAGTTACAT | GATCCCCCAT | GTTGTGCAAA | AAAGCGGTTA | 2820 |
| 131 | GCTCCTTCGG | TCCTCCGATC | GTTGTCAGAA | GTAAGTTGGC | CGCAGTGTTA | TCACTCATGG | 2880 |
| 132 | TTATGGCAGC | ACTGCATAAT | TCTCTTACTG | TCATGCCATC | CGTAAGATGC | TTTTCTGTGA | 2940 |
| 133 | CTGGTGAGTA | CTCAACCAAG | TCATTCTGAG | AATAGTGTAT | GCGGCGACCG | AGTTGCTCTT | 3000 |
| 134 | GCCCCGCGTC | AATACGGGAT | AATACCGCGC | CACATAGCAG | AACTTTAAAA | GTGCTCATCA | 3060 |
| 135 | TTGGAAAACG | TTCTTCGGGG | CGAAAACCTC | CAAGGATCTT | ACCGCTGTTG | AGATCCAGTT | 3120 |
| 136 | CGATGTAACC | CACTCGTGCA | CCCAACTGAT | CTTCAGCATC | TTTTACTTTC | ACCAGCGTTT | 3180 |
| 137 | CTGGGTGAGC | AAAAACAGGA | AGGCAAAATG | CCGCAAAAAA | GGGAATAAGG | GCGACACGGA | 3240 |
| 138 | AATGTTGAAT | ACTCATACTC | TTCTTTTTTC | AATATTATTG | AAGCATTTAT | CAGGGTTATT | 3300 |
| 139 | GTCTCATGAG | CGGATACATA | TTTGAATGTA | TTTAGAAAAA | TAAACAAATA | GGGGTTCCGC | 3360 |
| 140 | GCACATTTCC | CCGAAAAGTG | CCACCTGACG | TCTAAGAAAC | CATTATTATC | ATGACATTAA | 3420 |
| 141 | CCTATAAAAA | TAGGCGTATC | ACGAGGCCCT | TTCGTCTTCA | AGCTGCCTCG | CGCGTTTCGG | 3480 |
| 142 | TGATGACGGT | GAAAACCTCT | GACACATGCA | GCTCCCGGAG | ACGGTCACAG | CTTGCTGTGA | 3540 |
| 143 | AGCGGATGCC | GGGAGCAGAC | AAGCCCGTCA | GGGCGCGTCA | GCGGGTGTTG | GCGGGTGTCG | 3600 |
| 144 | GGGCGCAGCC | ATGACCCAGT | CACGTAGCGA | TAGCGGAGTT | GGCTTAACTA | TGCGGCATCA | 3660 |
| 145 | GAGCAGATTG | TACTGAGAGT | GCACCATATC | GACGCTCTCC | CTTATGCGAC | TCCTGCATTA | 3720 |
| 146 | GGAAGCAGCC | CAGTAGTAGG | TTGAGGCCGT | TGAGCACCGC | CGCCGCAAGG | AATGGTGCTG | 3780 |
| 147 | GCTTATCGAA | ATTAATCGAC | TCACTATAGG | GAGACCCGAA | TTGAGCTCG | CCCCGTTACA | 3840 |
| 148 | TAACTTACGG | TAAATGGCCC | GCCTGGCTGA | CCGCCCAACG | ACCCCGCCCC | ATTGACGTCA | 3900 |
| 149 | ATAATGACGT | ATGTTCCCAT | AGTAACGCCA | ATAGGGACCT | TCCATTGACG | TCAATTGGGTG | 3960 |
| 150 | GAGTATTTAC | GGTAAACTGC | CCACTTGGCA | GTACATCAAG | TGTATCATAT | CCCAAGTACG | 4020 |
| 151 | CCCCCTATTG | ACGTCAATGA | CGGTAAATGG | CCCGCTGGC | ATTATGCCCA | GTACATGACC | 4080 |
| 152 | TTATGGGACT | TTCTACTTGG | GCAGTACATC | TACGTATTAG | TCATCGCTAT | TACCATGGTG | 4140 |

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|-----|------------|------------|------------|------------|------------|------------|------|
| 153 | ATGCGGTTTT | GGCAGTACAT | CAATGGGCGT | GGATAGCGGT | TTGACTCACG | GGGATTTCCA | 4200 |
| 154 | AGTCTCCACC | CCATTGACGT | CAATGGGAGT | TTGTTTTGGC | ACCAAAATCA | ACGGGACTTT | 4260 |
| 155 | CCAAAATGTC | GTAACAACTC | CGCCCCATTG | ACGCAAATGG | GCGGTAGGCG | TGTACGGTGG | 4320 |
| 156 | GAGGTCTATA | TAAGCAGAGC | TCGTTTAGTG | AACCGTCAGA | TCGCCTGGAG | ACGCCATCCA | 4380 |
| 157 | CGCTGTTTTG | ACCTCCATAG | AAGACACCGG | GACCGATCCA | GCCTCCGCGG | GATCTTGGTG | 4440 |
| 158 | GCGTGAAACT | CCCGCACCTC | TTCGGCCAGC | GCCTTGTAGA | AGCGCGTATG | GCTTCGTGGG | 4500 |
| 159 | GATCCCCCAA | AGAATCCTTA | GCTCCCCCTG | GTAGAGACGA | AGTCCCTGGC | AGTTTGCTTG | 4560 |
| 160 | GCCAAGGGAG | GGGGAGCGTA | ATGGACTTTT | ATAAAAGCCT | GAGGGGAGGA | GCTACAGTCA | 4620 |
| 161 | AGGTTTCTGC | ATCTTCGCCC | TCAGTGGCTG | CTGCTTCTCA | GGCAGATTCC | AAGCAGCAGA | 4680 |
| 162 | GGATTCTCCT | TGATTTCTCG | AAAGGCTCCA | CAAGCAATGT | GCAGCAGCGA | CAGCAGCAGC | 4740 |
| 163 | AGCAGCAGCA | GCAGCAGCAG | CAGCAGCAGC | AGCAGCAGCA | GCAGCAGCCA | GGCTTATCCA | 4800 |
| 164 | AAGCCGTTTC | ACTGTCCATG | GGGCTGTATA | TGGGAGAGAC | AGAAACAAAA | GTGATGGGGA | 4860 |
| 165 | ATGACTTGGG | CTACCCACAG | CAGGGCCAAC | TTGGCCTTTC | CTCTGGGGAA | ACAGACTTTC | 4920 |
| 166 | GGCTTCTGGA | AGAAAGCATT | GCAAACCTCA | ATAGGTCGAC | CAGCGTTCCA | GAGAACCCCA | 4980 |
| 167 | AGAGTTCAAC | GTCTGCAACT | GGGTGTGCTA | CCCCGACAGA | GAAGGAGTTT | CCCAAACTC | 5040 |
| 168 | ACTCGGATGC | ATCTTCAGAA | CAGCAAAATC | GAAAAAGCCA | GACCGGCACC | AACGGAGGCA | 5100 |
| 169 | GTGTGAAATT | GTATCCCACA | GACCAAAGCA | CCTTTGACCT | CTTGAAGGAT | TTGGAGTTTT | 5160 |
| 170 | CCGCTGGGTC | CCCAAGTAAA | GACACAAACG | AGAGTCCCTG | GAGATCAGAT | CTGTTGATAG | 5220 |
| 171 | ATGAAAACCT | GCTTTCCTCT | TTGGCGGGAG | AAGATGATCC | ATTCTTCTC | GAAGGGAACA | 5280 |
| 172 | CGAATGAGGA | TTGTAAGCCT | CTTATTTTAC | CGGACACTAA | ACCTAAAATT | AAGGATACTG | 5340 |
| 173 | GAGATACAAT | CTTATCAAGT | CCCAGCAGTG | TGGCACTACC | CCAAGTGAAA | ACAGAAAAAG | 5400 |
| 174 | ATGATTTTCA | TGAACCTTTC | ACCCCGGGG | TAATTAAGCA | AGAGAACTG | GGCCAGTTT | 5460 |
| 175 | ATTGTCAGGC | AAGCTTTTCT | GGGACAAATA | TAATTGGTAA | TAAAATGTCT | GCCATTTCTG | 5520 |
| 176 | TTCATGGTGT | GAGTACCTCT | GGAGGACAGA | TGTACCACTA | TGACATGAAT | ACAGCATCCC | 5580 |
| 177 | TTTCTCAGCA | GCAGGATCAG | AAGCCTGTTT | TTAATGTCAT | TCCACCAATT | CCTGTTGGTT | 5640 |
| 178 | CTGAAAACCT | GAATAGGTGC | CAAGGCTCCG | GAGAGGACAG | CCTGACTTCC | TTGGGGGCTC | 5700 |
| 179 | TGAACTTCCC | AGGCCGGTCA | GTGTTTTCTA | ATGGGTACTC | AAGCCCTGGA | ATGAGACCAG | 5760 |
| 180 | ATGTAAGCTC | TCCTCCATCC | AGCTCGTCAG | CAGCCACGGG | ACCACCTCCC | AAGCTCTGCC | 5820 |
| 181 | TGGTGTGCTC | CGATGAAGCT | TCAGGATGTC | ATTACGGGGT | GCTGACATGT | GGAAGCTGCA | 5880 |
| 182 | AAGTATTCTT | TAAAAGAGCA | GTGGAAGGAC | AGCACAATTA | CCTTTGTGCT | GGAAGAAACG | 5940 |
| 183 | ATTGCATCAT | TGATAAAATT | CGAAGGAAAA | ACTGCCAGC | ATGCCGCTAT | CGGAAATGTC | 6000 |
| 184 | TTCAGGCTGG | AATGAACCTT | GAAGCTCGAA | AAACAAAGAA | AAAAATCAAA | GGGATTCAGC | 6060 |
| 185 | AAGCCACTGC | AGGAGTCTCA | CAAGACACTT | CGGAAAATCC | TAACAAAACA | ATAGTTCCTG | 6120 |
| 186 | CAGCATTACC | ACAGCTCACC | CCTACCTTGG | TGTCCTGCT | GGAGGTGATT | GAACCCG | 6177 |

(2) INFORMATION FOR SEQ ID NO: 2:

(i) SEQUENCE CHARACTERISTICS:

| | |
|-------------------|---------------|
| (A) LENGTH: | 98 base pairs |
| (B) TYPE: | nucleic acid |
| (C) STRANDEDNESS: | single |
| (D) TOPOLOGY: | linear |

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

| | | | | | | |
|-------------|------------|------------|------------|------------|------------|----|
| GTACGTTTTAA | ACGCGGCGCG | CCGTCGACCT | GCAGAAGCTT | ACTAGTGGTA | CCCCATGGAG | 60 |
| ATCTGGATCC | GAATTCACGC | GTTCTAGATT | AATTAAGC | | | 98 |

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208

209 (2) INFORMATION FOR SEQ ID NO: 3:

210

211 (i) SEQUENCE CHARACTERISTICS:

212

213 (A) LENGTH: 98 base pairs

214 (B) TYPE: nucleic acid

215 (C) STRANDEDNESS: single

216 (D) TOPOLOGY: linear

217

218 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

219

220 GGCCGCTTAA TTAATCTAGA ACGCGTGAAT TCGGATCCAG ATCTCCATGG GGTACCACTA 60

221 GTAAGCTTCT GCAGGTCGAC GGC GCGCCGC GTTTAAAC 98

222

223

224

225 (2) INFORMATION FOR SEQ ID NO: 4:

226

227 (i) SEQUENCE CHARACTERISTICS:

228

229 (A) LENGTH: 51 base pairs

230 (B) TYPE: nucleic acid

231 (C) STRANDEDNESS: single

232 (D) TOPOLOGY: linear

233

234 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

235

236 GATCTCGGTC TCCAACAGCA ACAGCAACAG CAACAGCAAC AGGGTCTTCT G 51

237

238

239

240 (2) INFORMATION FOR SEQ ID NO: 5:

241

242 (i) SEQUENCE CHARACTERISTICS:

243

244 (A) LENGTH: 51 base pairs

245 (B) TYPE: nucleic acid

246 (C) STRANDEDNESS: single

247 (D) TOPOLOGY: linear

248

249

250

251 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

252

253 GATCCAGAAG ACCCTGTTGC TGTTGCTGTT GCTGTTGCTG TTGGAGACCG A 51

254

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SEQUENCE VERIFICATION REPORT
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Original Text